

WHAT IS CLAIMED IS:

1. A medical perfusion system for use in connection with the medical treatment of a patient, comprising:

5 a first blood pump adapted to pump blood through a first conduit fluidly connected to the patient;

a second blood pump adapted to pump blood through a second conduit fluidly connected to the patient;

10 a first sensor for sensing a first condition relating to the pumping of blood through said first conduit, said first sensor generating a sensing signal relating to said first condition;

15 a second sensor for sensing a condition relating to the pumping of blood through said second conduit, said second sensor generating a sensing signal relating to said second condition;

20 a data communications network for operatively interconnecting said blood pumps and said sensors, said data communications network having a plurality of network connectors, each of said network connectors having an identical connector configuration;

25 a first adapter pod having a common connector and a device connector, said common connector being adapted to be coupled to one of said network connectors and said device connector being adapted to be coupled to said first pump;

30 a second adapter pod having a common connector and a device connector, said common connector of said second adapter pod being adapted to be coupled to one of said network connectors and said device connector of said second adapter pod being adapted to be coupled to said second pump;

35 a third adapter pod having a common connector and a device connector, said common connector of said third adapter pod being adapted to be coupled to one of said network connectors and said device connector of said third adapter pod being adapted to be coupled to said third pump;

a fourth adapter pod having a common connector and a device connector, said common connector of said fourth adapter

pod being adapted to be coupled to one of said network connectors and said device connector of said fourth adapter pod being adapted to be coupled to said fourth pump, said device connector of said fourth adapter pod having a different structure than said device connector of said first adapter pod;

means for transmitting messages in the form of digital data packets among said first and second blood pumps and said first and second sensors over said data communications network; and

a controller operatively coupled to said blood pumps and said sensors via said data communications network, said controller having an input device for accepting pump control commands relating to said first and second blood pumps from an operator.

2. A system as defined in claim 1 wherein said device connector of said fourth adapter pod has a first number of signal lines and wherein said common connector of said fourth adapter pod has a second number of signal lines different than said first number.

3. A system as defined in claim 1 wherein said means for transmitting messages comprises:

means for generating a message containing a control command for one of said pumps; and

means for generating a message containing data relating to one of said first and second conditions.

4. A system as defined in claim 1 wherein each of said adapter pods comprises means for generating a message in the form of a digital data packet.

5. A system as defined in claim 1 wherein said controller includes a plurality of network connectors and wherein said data communications network includes a network extender comprising:

a network connector adapted to be operatively coupled to one of said network connectors of said controller;

a plurality of extender connectors adapted to be connected to said common connectors of said adapter pods; and

5 a data bus electrically interconnecting said network connector of said network extender with each of said extender connectors.

10 6. A system as defined in claim 1 wherein said controller additionally comprises a network controller for controlling transmission of said messages over said data communications network.

15 7. A medical perfusion system for use in connection with the medical treatment of a patient, comprising:

a first type of perfusion device, said first type of perfusion device comprising a blood pump being adapted to pump blood through a fluid conduit connected to the patient;

20 a second type of perfusion device, said second type of perfusion device being adapted to sense a condition relating to the pumping of blood through said fluid conduit, said second type of perfusion device generating a sensing signal relating to said condition;

25 a data communications network for operatively interconnecting said first type of perfusion device and said second type of perfusion device, said data communications network having a plurality of network connectors, each of said network connectors having an identical connector configuration;

30 a first adapter pod having a common connector and a device connector, said common connector being adapted to be coupled to one of said network connectors and said device connector being adapted to be coupled to said blood pump;

35 a second adapter pod having a common connector and a device connector, said common connector of said second adapter pod being adapted to be coupled to one of said network connectors and said device connector of said second adapter pod being adapted to be coupled to said second type of perfusion

device, said device connector of said second adapter pod having a different structure than said device connector of said first adapter pod;

means for transmitting messages in the form of digital data packets among said perfusion devices over said data communications network; and

a controller operatively coupled to said perfusion devices via said data communications network, said controller having an input device for accepting pump control commands relating to said blood pump from an operator.

8. A system as defined in claim 7 wherein said device connector of said first adapter pod has a first number of signal lines and wherein said common connector of said first adapter pod has a second number of signal lines different than said first number.

9. A system as defined in claim 7 wherein said means for transmitting messages comprises:

means for generating a message containing a control command for said pump; and

means for generating a message containing data relating to said condition.

10. A system as defined in claim 7 wherein each of said adapter pods comprises means for generating a message in the form of a digital data packet.

11. A system as defined in claim 7 wherein said controller includes a plurality of network connectors and wherein said data communications network includes a network extender comprising:

a network connector adapted to be operatively coupled to one of said network connectors of said controller;

a plurality of extender connectors adapted to be connected to said common connectors of said adapter pods; and

a data bus electrically interconnecting said network connector of said network extender with each of said extender connectors.

5 12. A system as defined in claim 7 wherein said controller additionally comprises a network controller for controlling transmission of said messages over said data communications network.

10 13. A medical perfusion system for use in connection with the medical treatment of a patient, comprising:

a first type of perfusion device, said first type of perfusion device comprising a blood pump being adapted to pump blood through a fluid conduit connected to the patient;

15 a second type of perfusion device, said second type of perfusion device being adapted to sense a condition relating to the pumping of blood through said fluid conduit, said second type of perfusion device generating a sensing signal relating to said condition;

20 a data communications network for operatively interconnecting said first type of perfusion device and said second type of perfusion device, said data communications network having a plurality of network connectors and a network extender comprising:

25 a network connector adapted to be operatively coupled to one of said network connectors of said controller;

30 a plurality of extender connectors adapted to be connected to said common connectors of said adapter pods; and

a data bus electrically interconnecting said network connector of said network extender with each of said extender connectors;

35 means for transmitting messages in the form of digital data packets among said perfusion devices over said data communications network; and

a controller operatively coupled to said perfusion devices via said data communications network, said controller having an input device for accepting pump control commands relating to said blood pump from an operator.

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14. A system as defined in claim 13 wherein said means for transmitting messages comprises:

means for generating a message containing a control command for said pump; and

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means for generating a message containing data relating to said condition.

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15. A system as defined in claim 13 wherein said controller additionally comprises a network controller for controlling transmission of said messages over said data communications network.

~~16. An adapter pod for use in a medical perfusion system having a data communications network with a plurality of connection points each having a substantially identical network connector, said adapter pod comprising:~~

a common connector adapted to be connected to one of said network connectors, said common connector having a connector configuration;

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a device connector adapted to be connected to a perfusion device, said device connector having a connector configuration different than said connector configuration of said common connector; and

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~~means for generating a message in the form of a digital data packet.~~

2 17. An adapter pod as defined in claim 16 wherein said device connector has a first number of signal lines and wherein said common connector has a second number of signal lines different than said first number.

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